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**From:** Davis, Eva [Davis.Eva@epa.gov]  
**Sent:** 1/25/2017 5:20:35 PM  
**To:** d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]  
**CC:** Dan Pope [DPope@css-inc.com]  
**Subject:** RE: PID field methods  
**Attachments:** FVM4 Preliminary Soil and Groundwater Data.pdf; Final\_ST012\_RA\_FVM\_5A\_Containment\_Capture\_Analysis.pdf

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**From:** d'Almeida, Carolyn K.  
**Sent:** Wednesday, January 25, 2017 11:04 AM  
**To:** Davis, Eva <Davis.Eva@epa.gov>  
**Subject:** RE: PID field methods

Can you send me that download?

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**From:** Davis, Eva  
**Sent:** Wednesday, January 25, 2017 9:01 AM  
**To:** Steve Willis <steve@uxopro.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Wayne Miller <Miller.Wayne@azdeq.gov>  
**Subject:** RE: PID field methods

Yeah, I just downloaded the soil and groundwater data that they just posted. For LSZ-57 they are reporting benzene at 0.17 ug/l, and toluene at 1.9 ug/l. Not in line necessarily with the PIDs they were getting –

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**From:** Steve Willis [mailto:steve@uxopro.com]  
**Sent:** Wednesday, January 25, 2017 10:46 AM  
**To:** Davis, Eva <Davis.Eva@epa.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Wayne Miller <Miller.Wayne@azdeq.gov>  
**Subject:** RE: PID field methods

That's the way I would interpret it. However, the direct PID readings taken directly from the core barrel cuttings didn't seem to correlate with other field observations of no petroleum odor and no staining, as well as negative dye test results. It's possible that the ambient air could have masked some odor from the cuttings, but they had stopped pulling the pumps and for the most part, the air issue was cleared up by the time they were down to the LSZ, so I don't think there was much effect with regards to the deeper cuttings. They should have sampled that well in November, and they said we would see November results before the next BCT.

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**From:** Davis, Eva [mailto:Davis.Eva@epa.gov]  
**Sent:** Wednesday, January 25, 2017 8:56 AM  
**To:** Steve Willis; d'Almeida, Carolyn K.; Wayne Miller  
**Subject:** RE: PID field methods

Do I understand you right that the bottom line is that the direct readings should be taken as correct rather than the bagged readings? If there were strong odors in the air already, could have masked the odor from the core being logged -

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**From:** Steve Willis [mailto:steve@uxopro.com]  
**Sent:** Tuesday, January 24, 2017 4:24 PM

**To:** Davis, Eva <[Davis.Eva@epa.gov](mailto:Davis.Eva@epa.gov)>; d'Almeida, Carolyn K. <[dAlmeida.Carolyn@epa.gov](mailto:dAlmeida.Carolyn@epa.gov)>; Wayne Miller <[Miller.Wayne@azdeq.gov](mailto:Miller.Wayne@azdeq.gov)>

**Subject:** RE: PID field methods

With the Rotosonic, they pull up the core barrel and discharge the cutting by vibrating them out of the barrel directly into a heavy duty plastic bag in approximate 2-ft sections. The PID (direct) reading would be the reading taken through a hole in the plastic sleeve containing the cuttings. The PID (bagged) reading would be collected from a ziplock bag on soil removed from the initial plastic bag when the field geologist is checking for odor, staining, and lithology. I think Tiana, the AMEC field geologist used both methods near the bottom of that boring because we weren't getting any odors in those deep samples, but the PID readings weren't changing, and she wanted to see if there was a difference. However, I think moisture buildup in the ziplock bags probably affected those readings. They had a tough time deciding what depth to stop at in that boring, because we weren't detecting any odors, but the PID readings didn't change. That was also the day that they had to shut down operations for a while, because the ambient odor was so bad due to the other team pulling pumps. The City of Mesa rep came out because people in the area were complaining about the smell. That may have affected the PID readings, although you wouldn't think it would have affected the readings taken directly from the core barrel cuttings.

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**From:** Davis, Eva [<mailto:Davis.Eva@epa.gov>]

**Sent:** Tuesday, January 24, 2017 3:02 PM

**To:** d'Almeida, Carolyn K.; Wayne Miller; Steve Willis

**Subject:** PID field methods

Steve –

When you were doing oversight in the field during the drilling, did you observe them making PID measurements? If so, how did they normally do them?

I'm looking at the boring log for LSZ-57, and on the last 2 pages of it, they give 2 PID readings for each location where they took a reading. In the column marked "PID (ppm) (bagged)" the readings given are all 0.0, but in the column labeled "PID (ppm) (direct)" the readings are as high as the 40s and 50s. Looks like we need to understand how they did the PID measurements to know if they are valid –

Eva